

REMARKS

Claim 2 has been amended to recite that the controller causes the starter/battery charger to generate negative torque in the braking control by effecting a 3-phase short-circuiting between phases of the 3-phase armature coils of the starter/battery charger. Independent claims 6, 10 and 14 have been similarly amended. Additionally, claims 3, 7, 11 and 15 have been amended to conform to the amendments to claims 2, 6, 10 and 14, respectively.

The 3-phase short-circuiting is described at page 13, line 19 and at page 14, lines 13-14 of the specification.

Entry of the amendments and review and reconsideration on the merits are requested.

Claims 1-8 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,495,127 to Aota et al. Aota et al was cited as disclosing a three-phase starter/generator 3 controlled by switching power control unit 5, so as to apply braking to prevent speed overshooting at starting (citing col. 5, line 55 - col. 6, line 38). Additionally, claims 9 and 13 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 6,291,902 to Ogane et al. Ogane et al was cited as disclosing motor/generator 2 controlled by power control unit 12 so as to apply braking to prevent speed overshooting prior to reaching idling speed (citing col. 5, line 51 to col. 6, line 19).

Claims 10-12 and 14-16 also stand rejected under 35 U.S.C. §103(a) as being unpatentable over Aota et al in view of Ogane et al. As above, the Examiner relied on Ogane et al as teaching that it is known to control a motor/generator at starting so as to apply braking to prevent speed overshooting prior to reaching idling speed.

Applicants traverse, and respectfully request the Examiner to reconsider in view of the amendment to the claims and the following remarks.

As set forth in the Advisory Action dated April 26, 2005, the Examiner was of the view that the short circuiting feature of claims 2, 6, 10 and 14 encompasses the function of the switching power control unit 5 of Aota et al. As indicated in the Advisory Action, a path between respective phases is said to be defined by a pair of transistors in the inverter circuit, and the transistors are switched, thereby performing a short circuiting function (to the extent claimed).

That is, the Examiner's position is that the transistors in the inverter circuit 51 of Fig. 2 of Aota et al. are "switched" to thereby perform the claimed short circuiting function between phases of 3-phase armature coils.

In Fig. 2 of Aota et al., each armature of the three-phase coil 32 is connected between series transistors of inverters 5u, 5v and 5w. A short circuit could be effected if, for example, the upper transistor in any two of inverters 5u, 5v and 5w are turned on at the same time.

However, Aota et al. certainly does not disclose turning on the upper transistors in any two of inverters 5u and 5w at the same time, and the Examiner has not advanced any reason as to why the upper transistors in any of the two inverters would be turned on at the same time (to either charge storage battery 8 or to energize generator/motor 3). Therefore, it is respectfully submitted that the claims as presented in the Amendment under 37 C.F.R. § 1.116 filed April 6, 2005 patentably define over the cited prior art.

To more clearly define over Aota et al., the claims have been further amended to recite that the controller causes the starter/battery charger to generate negative torque in the breaking control by effecting a 3-phase short-circuiting between phases of the three-phase armature coils of the starter/battery charger. The “3-phase” short-circuiting is significant as it makes a large negative torque in the breaking control. Particularly, this “3-phase” short-circuited state is established by closing switches 91 and 92 (see Fig. 4) as described at page 14, lines 11-19 of the specification. By closing both switches 91 and 92, all arms of the 3-phase armature coils are short circuited. By establishing a “3-phase” short-circuited state, a large negative torque is rapidly generated (page 13, lines 21-23 of the specification). The negative torque prevents overshoot in the rotation speed of the engine, and thereby reduces shock imparted to the vehicle.

The subject “3-phase” short-circuiting required by the present claims is neither taught nor suggested by the cited references, and withdrawal of the foregoing rejections is respectfully requested.

Withdrawal of all rejections and allowance of claims 2-4, 6-8, 10-12 and 14-16 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

AMENDMENT UNDER 37 C.F.R. § 1.114(c)
U.S. Application No. 10/628,376

Q76314

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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